

CLAIMS

1. Optical fiber transmission system, comprising a transmitter terminal
5 (10) launching an optical signal into a fiber line, said fiber line guiding said signal to a receiver terminal, said signal being composed of a multitude of bit-patterns at different wavelength channels within a given total bandwidth of wavelengths,

characterized in that :

10 – the fiber line consists, in its first section, of at least two branches (12a, 12b),

– said transmitter (10) launching into each one of said branches (12a, 12b) a separate part of said optical signal being composed of a sub-multitude of said bit-patterns at neighbouring wavelength channels within non-
15 overlapping bandwidth domains,

– said parts of the signal being multiplexed together into one unique fiber (14) by means of a multiplexer station (13) not closer to said transmitter terminal (10), than the sum of the total optical powers guided by each of the branches (12a, 12b) plus the losses due to the multiplexing has decreased
20 below the total optical power, that is associated with a maximum optical power budget in said unique fiber (14) guiding the full bandwidth of wavelengths.

2. Transmission system according to claim 1, characterized in that the full bandwidth of wavelength is split into two domains.

3. Transmission system according to claim 2, characterized in that the
25 the C-band of approximately 1529 – 1562 nm and the L-band of approximately 1569 – 1604 nm are used as bandwidth domains launched into dedicated fiber branches (12a, 12b).

4. Transmission system according to claim 1, characterized in that the two fiber branches (12a, 12b) are embedded in the same terrestrial fiber cable.

5. Transmission system according claim 1, characterized in that the unique fiber (14) is embedded in a submarine fiber cable.

5 6. Transmission system according to claim 1, characterized in that the multiplexer station (13) is situated closed to a beach line.